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JUNE 1947

EDUCATION FOR WORK AND FAMILY LIVING

AMERICAN EDUCATIONAL RESEARCH ASSOCIATION

A Department of the

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**Vol. XVII, No. 3**

**June 1947**

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## **Education for Work and Family Living**

Reviews the literature for the two and one-half year period since the issuance of Volume XIV, No. 4, October 1944. Earlier literature was reviewed in Vol. XI, No. 4, Part 1 and Vol. XIV, No. 4. For reviews of literature before 1941 see previous issues on the Curriculum, Methods of Teaching, and Measurement.

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Washington, D. C.

February 1, 1901

Dear Sir:

I have the honor to acknowledge the receipt of your letter of the 28th inst.

and in reply to inform you that the same has been forwarded to the proper authorities for their consideration.

I am, Sir, very respectfully,  
Yours,  
J. H. Schmitt

Chief of Bureau

Division of Standards

U. S. Department of Commerce

Washington, D. C.

Enclosed for you are two copies of a report on the subject of the standardization of the weights and measures of the United States.

I am, Sir, very respectfully,  
Yours,  
J. H. Schmitt

Chief of Bureau

Division of Standards

U. S. Department of Commerce

Washington, D. C.



*Robert L. Williams*  
7-21-47

This issue of the REVIEW was prepared by the Committee on Education for Work and Family Living

HESTER CHADDERDON, *Chairman*, Iowa State College, Ames, Iowa

FRANCIS G. CORNELL, U. S. Office of Education, Washington, D. C.

JOHN R. LUDINGTON, North Carolina State College, Raleigh, North Carolina

ROBEN J. MAASKE, Eastern Oregon College of Education, LaGrande, Oregon

JOHN A. WHITESEL, Miami University, Oxford, Ohio

with the assistance of

HAMDEN L. FORKNER, Teachers College, Columbia University, New York,  
New York

RUTH T. LEHMAN, Ohio State University, Columbus, Ohio

W. HOWARD MARTIN, University of Connecticut, Storrs, Connecticut

CHARLES O. NEIDT, Iowa State College, Ames, Iowa

JAMES E. WERT, Iowa State College, Ames, Iowa



## INTRODUCTION

**I**N PLANNING the present cycle of the REVIEW, the editorial board decided to break the areas covered in the October 1944 issue into two issues: Education for Work and Family Living, and Education for Citizenship.

This issue of the REVIEW includes the chapters which carry forward the review of research in three areas: "Home and Family Life Education," "Industrial Education," and "Agricultural Education." The title "Business Education" has been used for a fourth chapter instead of that in the previous issue, "Commercial Education," since a section on "Distributive Education" has been included, and since the term *business* is coming to be used more commonly in the field. A separate chapter has not been devoted to work experience. The research on this problem will be found in the introductory chapter which is more general in nature.

HESTER CHADDERDON, *Chairman,*  
*Committee on Education for Work and Family Living.*

## CHAPTER I

### Education for Work Movement

JAMES E. WERT AND CHARLES O. NEIDT

**T**HE CONCEPT of inherent values in education for work is not new. During the last century the principle has evolved slowly and has been modified as a result of wars and periods of depression. During the last few years, however, a distinguishable pattern has begun to emerge. This pattern has resulted partly from changes in the social order and partly from thought given to the place of work experience in education. Studies concerning this relationship of work experience to general education were reviewed by McClusky (23) in the October 1944 issue of this journal.

#### History of the Movement

The major movements dealing with education for work prior to 1930 have been summarized by Sears (39). He traced vocational education from the apprenticeship training in the pre-Christian era thru the industrial revolution to our modern programs in the public secondary schools. He also examined the influences of social agencies and business organizations on the development of vocational education. Almost a hundred years ago the land-grant colleges and their secondary-school forerunners began their existence committed to programs for "education for work." Recognition of the need for education for the "laboring classes" appeared about 1845, but Mays (25) found that then the concern was for a cultural "up-lifting" rather than a desire to improve vocational competency.

The manual-labor movement, in contrast, was an effort to provide work experiences for students in classical colleges for the moral value and also for the financial support of both students and colleges. Mumford (29) described the difficulties which beset land-grant colleges resulting from the facts that: (a) the principle of government aid to higher education was new, and (b) there was skepticism about the desirability of teaching agriculture and mechanical arts in a college or university. Because farming was a family enterprise, these institutions soon saw the need for an educational program which was concerned with the welfare of the family. As a result, the foundations were laid for college home-economics departments.

Work experience at the college level may have had its beginnings in the land-grant colleges and universities. There was general agreement when these institutions were established that theoretical training alone would not accomplish the purposes, and that "manual labor" would be necessary. Some saw its value in dignifying labor, others in learning skills. The idea of self-support also influenced the amount of work experience in the early days. By 1900, work experiences had largely disappeared as an important aspect of programs in secondary and higher education except where such programs were tolerated for self-support.

### The Present Status of Work Experience

Exceptions can be found where work experience has continued to the present as an integral part of the school program. Certain religious sects in privately owned secondary schools and colleges have continuously stressed the importance of work experience. Tucker (41) made an evaluation of work experience in twelve such private secondary schools in the Middlewest.

Among the institutions of higher education stressing work experiences may be mentioned Antioch College (40) and College of Engineering of the University of Cincinnati (36). The general applicability of the co-operative plan of education has produced a wide divergence of opinion. In general, however, these opinions have not been based on adequate research concerning the effectiveness of exploratory practices in other institutions. In many other colleges, such as Berea, Tuskegee, Park, and Blackburn (38), the program of work experience has been more closely bound up in the objective of student self-support than in the cooperative plans.

The impetus given work experience by the depression of the 1930's thru the NYA program is well known. Studies reported by Eurich and Wert (11) in Minnesota, and by Cowley (6) at Ohio State University, and others reported by Newman (32) indicated that such experiences may be justified in terms of education for work as well as in terms of self-support. Joyal and Carr (18) described work-experience programs in American high schools, outlined the history of school-work programs, set forth the role of the NYA in the movement, and pointed to the influences of World War II.

Eleven cities having large numbers of students carrying on a part-time school-and-work program were the subjects of an investigation during the war (8). The older students tended to improve in scholarship, but students under sixteen years of age regressed. Work programs aided in keeping pupils from dropping out of school, however.

Scarcely had the impetus of the work incentive of the depression subsided when the impact of World War II brought about a revival. This time the major objective was increased production in war industry and agriculture. No reference is made here to the many programs inaugurated except where there was considerable emphasis devoted to the idea of education for work.

The war has stressed values in work experiences which are to some extent equally adapted to a postwar society (14, 16, 17, 24, 44, 45, 48). Certain wartime innovations have been accompanied by attempts at evaluation in terms of usefulness of the experience to the individual. Most studies, whether wartime innovations or not, have utilized opinions of students and faculty in determining effectiveness of the experiences. Among these are studies reported by Weber (47) and Turrell (42). It was the consensus in these investigations that work experiences have been valuable to the individuals.

### Area Schools, Junior Colleges, and Technical Institutes

Provision for education for work is meeting with a serious handicap in rural areas. The small school is unable to provide the variety of educational programs needed to meet the needs of young people. The area school has been proposed to make opportunities available in those fields of work in which pupil demand is too small to justify a program in small local schools. Educators in New York State, having recognized for many years the need for a larger school unit to provide more adequately for the educational needs of rural communities, proposed the formation of an intermediate-school district (4, 28, 32). One of the advantages of such a unit would be to facilitate the development of area schools to supplement the local high schools by providing opportunities for industrial education, distributive education, advanced business education, and homemaking projects. Two national committees studying problems in vocational education also pointed to the need for an expansion of the program into the post-high-school, junior-college, and semi-professional levels (1, 44).

Eells (9) found that there has been a growing demand for free public education in the two years beyond the twelfth grade, and that between 1920 and 1932 the percent of students electing terminal curriculums in junior colleges increased from twenty to forty-six. The number of junior colleges offering terminal curriculums also increased greatly in the 1920's and 1930's. The greatest interest in terminal courses has developed in California. However, some other states are concerned about this type of educational opportunity (15).

The development of a state program of institutes in New York had its beginning in six state schools of agriculture established between 1906 and 1916 (28). Later, technical education was added to their programs. In 1944, a plan was proposed to expand the program of the six institutes and to establish twenty institutes of applied arts and sciences for the purpose of promoting technical and general education thru a coordinated emphasis (34). A committee appointed to study needs surveyed technical occupations in forty-four industries. The number of youth required to provide replacements in these industries in the twelve geographical areas of the state was determined. These data were used in making proposals for programs to be undertaken and for estimates of cost (28).

### General Surveys

Many community surveys have been made looking forward to more effective programs of education for work. Usually, these surveys have been made by, or for, a department such as agriculture, industrial arts, commerce, or home economics. Surveys of this type are apt to evaluate the data with respect to the contribution which a given department can make. Important to this approach may be, the procedure may cause the omission of some areas of work by failure of the schedule forms to uncover needs not readily falling into such compartments as the departmental organization of schools now provides for vocational education.

The *Regent's Inquiry* in New York State is an example of a state survey which gave attention to the large problem of education for work. Norton (35) examined population movements, requirements of industry, occupational and geographic shifts within the state, and the mobility of labor. He analyzed the courses in the secondary schools which contributed to vocational adjustment. A companion study was made on the vocational plans of secondary-school pupils and the employment and unemployment of pupils who had been graduated or had withdrawn from high school.

Recognizing that changes in the school population forced a consideration of the problem of educating large numbers of youth who were not interested in continuing their schooling, The National Association of Secondary-School Principals made a study of occupational adjustment (2, 21). The investigation resulted in the collection of extensive data and the development of four instruments: Post-School Inventory, Youth-Interview Schedule, Employer-Interview Schedule, and Follow-up Card. Van Hoesen (46) also devised a schedule form.

### **Effects of Employment of Women on Family Life**

The number of women gainfully employed has been increasing rapidly in the past fifty years (13). The increase was accelerated during the war (37), particularly among middle-aged married women. The effects of employment of married women on family life have concerned educators (44), but not much research has been carried on to determine the nature of the effects. Essig and Morgan (10) found significant differences between the responses given to most items in Scott's family-adjustment scale by two groups of high-school girls. Mothers of one group were gainfully employed, and the other mothers were not employed. Daughters of employed mothers gave evidence of a greater feeling of lack of love, understanding, interest, and cooperation; and, of disapproval and shame of their parents. Also, they were more inclined to disregard parental advice.

Mead (26) examined the attitudes toward women's work in relation to sex roles and pointed out the need for employers to consider seriously the types of jobs which combine well with motherhood.

### **Present Conditions Affecting Education for Work**

Since education for work, if it is to be effective, must always be geared to the contemporary scene, it is essential to consider the rapidly changing occupational patterns in the postwar period. Many research studies and reports have been published having implication for presentday educational programs (7, 12, 19, 20, 22, 26, 27, 31 43). As can be seen from the titles the shift in occupational patterns has implications for education not only in work outside the home but also in home and family living.

### **On-the-Job Training for Veterans**

Many publications have appeared concerning the educational and social adjustment of veterans. Details of plans for educational and on-the-job



training have been reported by Brown (3) in a study for the American Council on Education; by Cartwright (5) for the Institute of Adult Education; by the Educational Policies Commission (30); and by the Committee on Education of the U. S. Department of Commerce (43). Little actual research concerning on-the-job training has been reported to date. However, it is likely that some studies concerning the effectiveness of the program now in operation are in progress.

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## CHAPTER II

### Home and Family Life Education

RUTH T. LEHMAN

THERE are at least three areas of research that are of particular importance to the professional worker in the field of home and family life education. The first is concerned with *the home and family* itself, contributing to the growing fund of information about it as a social institution and, consequently, to its better understanding. Such research is particularly significant since it is the base on which all programs and courses in home and family life education must be built if education is to achieve its function of furthering an improved and satisfying family life in a democracy. Another important area encompasses the *subjectmatter* divisions of nutrition, child development, textiles and clothing, housing, and home management. Research in these fields means much for the enrichment of courses and curriculums. A third area is concerned with *teaching* in the field of home and family life education, and includes studies in history, educational theory and processes, personnel, and administration.

During the past three years, research studies reported on the home and family, and on the various aspects of subjectmatter related to the home, have been so numerous that they would require entire chapters for their review alone. For this reason, as well as the fact that they do not come within the scope of the present chapter, they cannot be included here. Attention is called to them merely as a reminder of their importance, and of the fact that studies in education should not be viewed "out of context" of closely related research.

Some interesting facts are evident from a review of research related to teaching in the field of home and family life education. Examination of *Notes on Graduate Studies in Home Economics Education* (34), issued by the U. S. Office of Education, shows that close to two-thirds of the master's theses reported for 1944 were at the secondary-school level and dealt principally with curriculum and administrative problems. The remainder was scattered among history and status, teacher education, evaluation, and methods. Doctoral and professional studies in 1944 and 1945, on the other hand, were distributed about equally between the secondary and college levels. They were largely in the areas of curriculum and evaluation.

Studies selected for review from the research of 1944-46, inclusive, reflect the latter emphasis and are drawn quite generally from the doctoral and professional group of studies, since those reported at the master's level are seldom available in published form.

#### Status of the Curriculum

A pertinent curriculum study at the elementary- and secondary-school level was by Williams (37) on the housing or home-improvement programs in five centers: Berea, Cincinnati, Cleveland, Indianapolis, and the Uni-

versity of Florida Project in Applied Economics at Gainesville. The investigator visited each community, conferring with administrators, curriculum directors, supervisors, and teachers. He also consulted local authorities in housing, health, and juvenile aid, and made a thoro examination of all available course of study materials used in the five situations. He found programs developed in two ways: with the subjectmatter approach in Cincinnati, Cleveland, and Indianapolis; and with the problem-solving approach in Berea and Florida. Where subjectmatter was emphasized, social studies took the lead. Home economics and industrial arts gave "little evidence of any particular concern for, or contribution to, the problem of housing improvement." On the other hand, when the problem-solving approach was used, no one subject seemed to dominate, and such courses as home economics and industrial arts made a major contribution. Certain points of difference were interesting. Cincinnati gave much emphasis to public housing and made extensive use of visual aids. The University of Florida and Berea projects were the only ones which focused their teaching on the problems of low-income families.

The status of college courses on the family and marriage was explored by Thurman (33) and Landis (19) thru analysis of catalogs and questionnaires. The former, confining her study to member institutions of the Association of American Universities, reported that such a course was offered most frequently by the very large, publicly supported, coeducational schools. However, only about 6 percent of the total enrolment was being reached. The work was offered for the most part by the sociology department; in fact, twelve times as often as by the home-economics department. Landis, on the other hand, found that about one-half of the sociology departments and one-third of the home-economics departments in teachers colleges offered such a course! The sociology course usually emphasized the family as a social institution, while home economics put the emphasis on family relationships.

Home economics has developed so rapidly in the colleges during the past fifty years that few realize its present extent. Hasslock (13) recently analyzed catalogs of 598 colleges which grant degrees to white women, to discover the recognition given to the field of home economics and to determine curriculum content for major students. She found 93 percent of these schools allowing college-entrance credit in home economics, and 61 percent with courses available in this field. Degrees in home economics were offered in 83 percent of the state and municipal colleges, 78 percent of the agricultural and technical schools, 54 percent of the teachers colleges, and 40 percent of the private institutions. [There was no uniformity in either the type or amount of home economics required for a degree.] However, foods and nutrition, clothing and textiles, and home management led, both in the frequency with which they were offered and in the amount of work available. There was some overlapping of high-school and college work in home economics. [In general, the curriculum was over-

crowded leaving little opportunity for electives. In addition to providing for major students in the field, some institutions were experimenting with survey or integrated courses for the general education of all students.

Spafford (32) brought together findings from earlier scattered studies on the junior college and, for a selected group of schools, a statement of practices with respect to home-economics offerings for personal and home-life, homemaking, and preemployment education. Emphasis was given to the philosophy of home economics and education thruout the monograph.

Wartime changes in teacher-education curriculums in home economics were studied by Coble (6) in terms of their implications for inservice education of teachers in the postwar years. Evidences of change were secured from three sources: a general questionnaire study and an inquiry into various types of emergency short courses, both of which had been conducted by home-economics committees of the Association of Land-Grant Colleges and Universities; and also, from a study which had been made by Alice Keliher for the Wartime Commission in Washington. Changes were evaluated in terms of six criteria for a good inservice education program. Some of the recommendations were: that the use of such training periods as those afforded by the workshop and conference type of organization be continued; that an increased peacetime emphasis be placed on the co-ordination of all resources for teacher education; and that a purposeful attack be made on problems of the teacher's personal and social adjustment and on her development of a sense of social responsibility.

Van Til (35) in considering the present curriculum of the total secondary school presented a thesis that is of significance to those who work in the field of home and family life education. He advocated a functional curriculum in terms of social living, rather than the usual subjectmatter approach and proposed that this curriculum be drawn from the *interaction* of "a democratic pattern to give direction, the social realities, and the needs of adolescents." The centers of experience which he would set up in the curriculum include a number to which home economics could make a major contribution. Among these are: "home, school, and friends"; "choosing, buying, and using goods and services"; "keeping healthy"; and "personal development."

### Teaching Methods and Materials

Observation of high-school classes as a means of learning about teaching was studied by Barton (1) who analyzed the reports of college students for evidences of their growth in social sensitivity, in use of reflective thinking, and in self-direction. Factors which were shown to be positively related to the growth of the college students in these directions were: observation in both the early and latter parts of a semester, extension of observation over a period of time, observation of a series of consecutive lessons, and observation of classes at more than one age level and under more than one teacher.

Three studies were concerned with the development and use of resource



materials in teaching. The first by Fleck (11) involved the preparation of a resource unit on "The Relation of Schools to Society," to be used in a course in education for freshmen preparing to teach. Among the important social pressures considered was the family. Included in the suggested materials were selected student problems and experiences, teacher experiences, motion pictures and recordings, methods of teaching and evaluation, and bibliography. Results of using the resource unit were evaluated thru interviews with instructors and the Freshman Program Executive Committee, and by analysis of student papers, recorded transcriptions of class discussions, and student questionnaires. Young (40) selected and studied resource materials for use "with prospective teachers of home economics in an attempt to improve the program in teacher education by improving the quality of human relationships in the class room." These materials—nine motion pictures, three recordings, and four short stories—were selected for their potential value in emphasizing with prospective teachers the constellation of human relationships observed, the probable needs of the individuals concerned, the ways in which good human relationships were furthered, and social values in the situation. Materials were selected on the basis of eight categories of needs, seven operations by which a teacher may further good human relationships, and ideas important for democratic living. Detailed analyses of the resource materials were made for use with prospective teachers, and suggestions were given for the evaluation of growth toward the objectives of the unit.

The basic concept of Young's research was carried a step further in the third study by Fults (12) in an inservice program with teachers. She sought to improve the learning of high-school pupils thru helping teachers to establish good human relationships in the classroom. For this study, she used three experimental classes and three control groups, all in home economics. Six tests and check-sheets were administered to pupils at the beginning and close of the experiment. These were concerned with social acceptance, pupils' problems and needs, intelligence, and reading comprehension. Each week teachers met with the research worker to study various resource materials which had been selected for their value in promoting deeper insight into behavior and personality development. These materials were supplemented by suggested guides on some of the learning difficulties of children. Findings were appraised in terms of the results of student testing, the teacher's anecdotal records and informal observations of the pupils' improvements. The experimental group showed important gains, some of which were statistically significant.

A most readable account of a study of college-teaching methods was given by Holway (17). She experimented with five types of laboratory experiences in child development: nursery school, child-development clinic, public schools, community, and cooperating homes. Full illustrations were given of the use of these experiences in preparental education to provide understanding of some ways to meet such basic needs of children as need

for a feeling of belongingness, need for acceptance as an individual, and need for expression of emotions. The effectiveness of the program was shown in certain evidences of students' increased understanding of children; improved technics in working with them; and in changes in the children, the mothers as they participated in the program, and the college students themselves.

### **Effectiveness of Courses and Programs**

Interest in evaluation was particularly evident during the three-year period covered by this review. Outlaw (23) demonstrated the effectiveness of a nutrition unit in first grade when taught thru the various activities of the school day. Results showed a shift in total dietary practices toward the good and excellent end of the scale, and 30 percent more children eating good lunches by the end of the teaching program. Clark (5) studied the effectiveness of Red Cross nutrition classes in terms of evidences of nutrition learning, improved buying practices, and reactions of the group to the teaching program. The experimental group was made up of nineteen classes; the control group, of housewives who were not enrolled and who represented the same nationality and occupational groups. The experimental group showed some improvement in family diets, but it was demonstrated that changes in food habits are not brought about merely by developing an understanding of nutritive values. More emphasis was evidently needed on practice in family menu planning, on adequate breakfasts, on the economic and nutritive value of margarine, on the buying of fresh vegetables and fruits. Class size, the teacher, and certain types of class experience were found to be important factors in the success of the class as judged by women in the groups.

Seay and Meece, in a progress report of the Sloan Experiment in Kentucky (30), outlined the plan to be used in measuring improvement in dietary practices, resulting from the educational program now being conducted thruout the entire school in the communities which are included in the study. The plan calls for certain measurements to be taken at the beginning and close of the experiment, and at intervals thruout the study. These measures include such checks on dietary practices in the community as: one-day reports of family diets and records of food production and food storage, pupils' school lunches, and pupils' diets for a five-day period.

Two writers reported studies in the area of consumer education. Prevey (26) studied one hundred families who were from the upper socio-economic level and who had children who were juniors or seniors in high school. She held controlled interviews with the mothers to discover what experiences in the use of money were given their children. She also had the students check the Bell Adjustment Inventory, and the Stott Self-Reliance Scale. Four years later the mothers of fifty of these boys and girls filled out a questionnaire concerning the money habits of their children. Apparently no attempt was made to contact the young people themselves. The factors of childhood training which seemed to be most important in building a

sound foundation for competency in money matters were: an adequate and regular allowance, absence of parental domination, and gradual assumption of financial responsibility. Acquaintance with family financial matters and experience in earning were also valuable. There tended to be some relationship between personality adjustment in youth and ability in financial management. Kory (18) appraised the results of controlled group work on family practices in food buying. The college students in the experimental group were in food-selection classes. They checked their purchases each week against their family needs. At the end of four weeks their practical knowledge was significantly higher than that of the controlled group. They also used a smaller proportion of the family income for food. The study demonstrated that, for evaluation purposes, the gross-weight standard set by the Bureau of Human Nutrition and Home Economics was superior to the divisions of the food budget suggested by either Sherman or Gillett.

Several investigations dealt with the evaluation of an entire school program in home economics. Such research is a big and pioneer undertaking. Therefore, reports coming from it should be examined carefully for representativeness of the objectives being tested, for breadth and soundness of the evaluation procedures used, and for defensibility of the conclusions drawn. Brown (3) reported a study still in progress in twenty Minnesota high schools. Parker (24) summarized an investigation carried on in three schools in Kentucky. Both studies made much use of tests and various types of record sheets in measuring results of teaching. Creighton (8) gave a one-page sketch of a statewide evaluation of programs of work which is suggestive of a different type of approach to the problem. In this project, high-school principals, home-economics teachers, and state supervisors each year evaluated a variety of evidences of the work of the department in relation to five characteristics of an effective program. Their findings formed the basis for planning needed changes in the programs.

Holtzclaw (16) used a still different approach in her investigation of how well the home-economics program in North Carolina was meeting the needs of the Negro group. Using as criteria the standards proposed in *The Children's Charter* of the White House Conference on Child Health and Protection, she measured needs of the group against the home-economics curriculum in fifty-five federally aided schools. Statistical evidence of needs in employment, housing, and the like was secured from United States census data, the *Consumer Purchases Study*, and a variety of state reports. A study of the curriculum was made by examining the state course of study, textbooks, and various records and reports on file in the state department of education. Unfortunately, visits to the schools and conferences with teachers were not feasible. Among the conclusions drawn was the need for new units or increased emphasis on such practical problems as: the best use of a small income, simple house repairs and renovation, infant and maternal care, sanitation and privacy in the home, and problems of divorce and delinquency.



### Student Abilities, Attitudes, and Values

Several pieces of research have dealt with other aspects of student evaluation than the results of specific teaching. Silverman (31) sought insight into the psychology of clothing and grooming behavior of adolescent girls. The major part of the study was based on questionnaire findings. The more challenging section, and one which invites further investigation, was the special study of the highest and lowest ranking juniors and seniors as rated on appearance by teachers. Her questionnaire findings were supplemented by the Sheviakov and Friedberg Interests and Activities Scales, and such personal information as intelligence, economic status, and leadership activities. Six case studies of those nearest the extremes in appearance ratings gave evidence that regard to care of appearance was purposive and rooted in the girl's history, a means of expressing psychological mechanisms and of working out conflict.

Long (22) reported a test of the ability of over two thousand junior and senior high-school boys and girls to recognize some of the more common problems of adolescents. The evaluation instrument used in this study is of special interest. It presented fifteen problem situations based on emotionally toned problems of young people which had been reported earlier by home-economics teachers. The students were asked to select from a list of seven suggestions the best and poorest ways of approaching each of five of the problems. A study by Lehman (20) tested the usefulness of attitude scales of the Thurstone type in checking attitudes of high-school boys and girls toward several social problems related to the home and toward certain close parent-adolescent relationships. Among other findings, the study demonstrated the importance of the implications of one's oppositions and uncertainties in any consideration of a "score," the cumulative effect of progressively stronger endorsements, the lower reliability of scales concerned with one's more immediate and personal behavior, and the superiority of descriptive response patterns over a numerical score.

A comprehensive attitude study at the college level was reported by Rockwood and Ford (27). Over three hundred juniors and seniors—about one-half of whom were men—filled out early in the semester an anonymous questionnaire on courtship, marriage, and parenthood. Approximately two-thirds of the group were enrolled in a marriage course. Some of the major findings indicated that in general, the attitudes of class and nonclass groups were similar; the most discriminating background factors were the student's home community and the college in which he was registered; the students had certain well-defined beliefs concerning such questions as qualities preferred in a mate, their standards of premarital behavior, and conditions under which divorce is justified; and outstanding differences in attitude were those between the sexes.

An investigation to identify some of the factors associated with social acceptance of students within college classes was made by Dirks (9). The Social Acceptance Scale, devised by Rath, was checked early in the

school year by students in thirty-six home-economics classes. Additional data were secured from students' confidential folders and thru interviews with faculty and selected students. Findings indicated the prevalence of "unknownness" among the students and gave evidence of the influence of large classes, formal teaching procedures, and rigid classroom arrangements in producing this condition. They gave evidence also of the relation between degree of acceptance and certain personal qualities. Implications were given for a student-guidance program.

Duvall (10) compared the concepts of parenthood held by mothers in various subcultures. Free written responses were given by women at a regular meeting of twenty-four mothers' study groups in answer to the questions: "What are five things a good mother does?; What are five things a good child does?" Statistically, significant differences in responses were found between social-class levels represented, Negro and white mothers, and mothers of older children, as compared with those whose oldest child was below school age. Mothers from lower-class levels, Negro mothers, and those with older children tended to give "traditional" responses to the questions.

Pattison (25) compared value patterns of a group of high-income farm families. The patterns were secured from two sources: (a) a values inventory, and (b) account records. Nine values were selected for study: education, religion, health, economic security, social relationships, workmanship, beauty, recreation, and status. An evaluation instrument was constructed of problems calling for choices of goods or services which represented approximately equal cash expenditures. Possible reasons for each choice made were then set up in terms of the special values being studied. Significant differences were found in value patterns among the families studied, and also in the extent to which value patterns from the inventory and the account records were correlated.

### **Aids for Occupational Guidance**

Several studies were related to establishing bases for occupational guidance of students. Lehman (21) reported that the Kuder Preference Record revealed distinct differences in patterns of activity preference among various groups of practicing home economists. Secondary-school teachers as a group were highest in social service, artistic, and mechanical preferences; hospital dietitians in scientific and computational areas. Business home economists varied according to the type of business in which they were engaged.

Schmalhausen (28) investigated employment opportunities for girls in "down-state" Illinois. She then secured from a number of personnel directors in the state lists of characteristics which they considered important in their employees. These characteristics, in turn, were rated by a group of industrial psychologists and college teachers. Experiences useful in developing important characteristics were suggested for the three types of occupations in which the greater number of women in Illinois

were employed: domestic service, retail selling, and factory work in the clothing, textile, and leather trades.

### **The Successful Teacher**

Williamson (39) in an informal study analyzed the ways in which successful supervising teachers worked with student teachers. From this analysis she set up characteristics of the good supervisor in terms of her handling of human relationships; her own technics of teaching, management, and supervision; her ways of helping the student teacher to assume responsibility, make plans, and evaluate teaching; and her methods of evaluating the ability of the student teacher. Hatcher (14) made a careful study of characteristic differences between selected, outstanding, and poor teachers of home economics in Michigan high schools. Sources of data were records on file in the college and state-education offices and controlled interviews with the teachers concerned, their superintendents, and a sampling of high-school pupils and mothers in each community. Thirteen discriminating characteristics of the good home-economics teacher were identified. Among these were the breadth and strength of her interests, her convictions concerning homemaking education, the quality of teacher-pupil and teacher-parent relationships which she obtained, and the teacher's contributions to the community.

### **Administrative Problems**

Several investigations were concerned with problems of administration. Blazier (2) described the research on pupil needs, specifications, and other factors which were basic to planning and equipping a combination homemaking room in a California school. Standards thus established for equipment and arrangement were reported.

Using the questionnaire method, Walsh (36) surveyed current practices of remuneration for supervision in fifty-nine institutions which reported off-campus student teaching. There was no consistent policy. Sixteen schools reported no cash remuneration beyond the regular salary, tho in some cases the state department of education reimbursed higher salaries for these teachers than for others. Sixteen other schools paid the teacher a flat sum for supervision without reference to the number of students supervised; twenty-seven paid a stated amount for each student teacher. The source of funds was most commonly the state department of education; equal sharing of this responsibility by that office and the institution was next in rank. Reimbursement for travel to supervisory conferences was usual, but student teachers as a rule paid their own traveling expenses.

Chadderdon (4) reported a six-year study of teacher supply and demand in Iowa. Over one thousand students in Iowa colleges prepared to teach home economics during that period. Three-fourths of these gave some service to the schools of the state immediately after graduation, and one-third of

the balance taught elsewhere. By the end of three years, 59 percent of those teaching had left the field or the state. The demand for teachers increased in Iowa, but the proportion of 25 percent of new teachers remained approximately the same. There was no demand in the state for teachers with a master's degree. Analysis in one teacher-training institution of the reasons given by home-economics students for preparing to teach, as contrasted with those planning to go into commercial work, offered stimulating leads to other research.

Methods of working with a teaching staff on the college curriculum were studied by Scott (29) and tested in a practical situation with those of the faculty who were teaching a group of required home-economics courses at the freshman level. The over-all purpose of the cooperative approach was "to promote inservice growth and development of the faculty in order that educational experiences provided students might become increasingly effective in the promotion of satisfying personal, home, and community living." Four means of promoting cooperative work were used: all staff members who were teaching the required home-economics courses for freshmen formed a study group to consider common problems and goals thruout the year; a coordinator was selected from the group to give leadership and to promote the unification of the courses into a significant whole; instructors from different areas of specialization who were responsible for a given course were encouraged to work together on their teaching problems and plans; and finally, the staff was encouraged to help bring students into cooperative planning and evaluation. The results of the year's experiment were appraised informally in the light of eight criteria for sound curriculum development.

Henderson (15) analyzed the changes needed in the administration of home economics in college and university if these institutions are to contribute effectively to the improvement of home and family life thru communitywide programs, coordinated in terms of the democratic ideal. The implications of this thesis were developed. They were concerned with the exemplification of democratic values; the interdependence of residence, research, and fieldwork; the direction to be taken by these three types of service; efforts to be made for universitywide influence; facilitation of cooperative work on the part of all subjectmatter areas concerned with home and family life; encouragement of the growth of staff members; and facilitation of coordination of the various agencies for home and family life education.

### **Development of Home Economics**

Not since the writings of Isabel Bevier has there appeared any extensive treatment of the development of home economics as an area of education. Two publications of the past three years have contributed to the historical literature of the field. Craig (7) gave a chronological account of significant stages in the development of home economics in the public schools and

colleges and in the various government services, and important events in the history of the American Home Economics Association. The study by Williamson (38) on the other hand sought to identify social and economic factors of the hundred-year period ending in 1918 which influenced the development of home economics, either thru leading to its introduction as a field of education or thru being a decisive influence in determining its character and direction. Among such factors were certain changes in educational philosophy and in the social and economic status of women. These received increased impetus following the Civil War when the greater emphasis on freedom and rights of the individual, the rise of science and industry, expansion in the West, and the establishment of land-grant colleges were developments of the times. The influence of certain strong personalities also gave impetus to the movement.

### Needed Research

Encouraging progress has been made in research in home and family life education. Some vital problems are being attacked; sounder research technics are being employed in their study. Yet certain needs are evident if research in this field is to make its potential contribution. Studies are needed on adult and community programs, as well as at the secondary and college levels. They are needed in the areas of administration and supervision, as well as curriculum, methods of teaching, and evaluation. Clearly, not all workers can be productive in all areas and at all levels, but greater progress might be made if each institution concentrated on one or two, and if several workers developed problems cooperatively. It is heartening to note that one national cooperative is underway—factors affecting the supply of home-economics teachers. Finally, there is need for important research findings to be made more readily available thru publication, either as individual articles or as bulletins incorporating several related studies. Educational research which does not function is rather futile. It is lost if it ends merely in typed reports.



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## CHAPTER III

### Industrial Education

JOHN A. WHITESEL

A STUDY of the research of the past few years reveals some new developments, as well as the continuation of trends previously noted. One outstanding trend is recognition of technical change in our society. Another is the consideration given to reappraisal of educational programs and postwar educational planning.

Educational objectives are being subjected to careful consideration in the light of current needs. Curriculum adjustments, refinements, and expansions have taken place. A more functional approach is evident in the school program. There has been a decided trend toward improved administrative and supervisory procedures. During the past few years many problems pertaining to teachers have come to the foreground: the teacher shortage, the problem of adequate salaries, and the need for more teacher education. The consideration of social adjustment has been evident from the standpoint of rehabilitation and retraining of demilitarized persons, displaced workers, out-of-school youth, and youth in school.

#### Preparation for a More Technical Age

The gradual development of a new technology became increasingly evident during the depression years of the 1930's. It was greatly accelerated, and its highly productive nature was strongly emphasized during the war years (17). The consumer products of industry have become far more technical than was recognized in the past. The need for training the masses to live in a technical society has been recognized from the standpoint of both the consumer and the producer.

Hickok (22) found that technological study was not only desirable, but advisable, in the curriculums of general education on the high-school level. His study investigated the value of electronics in industrial arts education and offered methods and means for implementing it in the program. Wooden (62) concluded from his findings that with increasing technological developments, demand for an aeronautics offering in industrial arts education will increase in the secondary schools. In a study of inventions and their social-economic influences, Hamilton (18) found need for more emphasis on inventions in the industrial arts program.

Wake (57) conducted a study in which he found a need for comprehensive collegiate programs devoted to technical training in the graphic arts. He pointed out that executives of graphic arts industries are increasingly demanding higher training, and that there are only limited collegiate opportunities for such. Cotton (12) carried out a study on collegiate technical education for Negroes and proposed plans for the development of a



state program in Missouri. The industrial-educational needs of Negroes in Ohio were investigated by Chavous (10). He concluded that the greatest opportunities for Negroes in that state were in the industrial occupations, and that all Negro boys and girls should be encouraged to take industrial work from the elementary school into the college.

The significance of industry today in developing school programs was apparent in such studies as that by Huss (24) on a program of studies developed from the metal-manufacturing industries, and the industrial drawing course developed by Medlar (32) based on industrial needs. It is also apparent in Seaman's (49) study in which he consulted the opinions of labor and management in regard to a program of industrial education for Sandusky, Ohio. The conclusion drawn from the study was that a program for students planning to work in industry—if only one type could be offered—should be general industrial, and that schools should make some provision for specialization and cooperative training if there were sufficient enrolment and adequate placement opportunities.

Beckley and Smith (5) found that a great majority of the graduates of Rochester Institute of Technology were convinced of the value of the cooperative experiences they had received, and, if faced with the problem of returning to school, would choose such a program in preference to a full-time schedule. The success of work programs today was also stressed in the findings of Andrews (3) and Miller (33).

### **Educational Reappraisal and Curriculum Refinement**

The war, and the reconversion period immediately following it, brought about such rapid and marked changes in social institutions that some revision of the educational program was inevitably required (37, 38). Proposals for the total educational picture, including inferences to objectives claimed for industrial arts and industrial-vocational education, have been made in *Proposals for Public Education in Postwar America* (36). It was recommended that, as a rule, vocational education thru grade fourteen should not be organized and administered in separate schools apart from general education. Where separate schools seemed advisable, these should also be responsible for the general education of its pupils. The authors of *Paths to Better Schools* (2) found the need for all youth to be broader educational opportunities including those for vocational training and work experience. They were agreed that vocational preparation in a family of occupations increases the individual's versatility and adaptability, and makes job adjustment easier; and, that terminal courses for technicians in various occupational fields should be provided by our public schools. Such courses should differ somewhat from either the programs for the training of craftsmen or professional engineers.

The report of the committee of the U. S. Office of Education to study postwar problems in vocational education (55) suggested groups to be served and recommended types of programs to be used. Problem-training

needs would include such groups as demobilized military personnel, displaced workers, and school-age youth. Recommended programs were all-day trade-preparatory, part-time, and evening-trade extension. Educational leaders believe vocational education will have to become more flexible; in the postwar era, it must meet the needs of more people, in more occupations, under a greater variety of conditions (36). London and Hostetler (29) in a study of postwar planning for industrial education, found a greater need for both industrial arts and industrial-vocational education in the postwar era of technical and industrial development. They also recommended more technical training (training for occupations above the skilled trades and below the engineering level) in the public schools and concluded that preemployment industrial-education programs should provide broad, basic training in the major industrial areas, rather than training for one specific job. Much the same was found by Lindahl (28) in an opinion poll which he conducted regarding postwar trends in industrial education.

During the three-year period, an effort toward curriculum improvement has been evident. Dixon (14) conducted a study on the organization and development of terminal occupational curriculums in selected junior colleges and Hosack (23) made a survey of industrial arts programs in thirty cities with a population range of 25,000 to 50,000 with recommendations for the postwar era. Josif (25) surveyed the industrial arts programs being conducted in the nation on the junior-college level and suggested more such offerings in the curriculum at this school level to meet the needs of the present industrial society. A study made of adult-education programs in Ohio showed that a competent teacher of industrial arts would be qualified to teach in such a program (30).

A growing tendency has been to make the content areas and the educational approach to these areas more functional in nature. It is not the content in itself that is of such great importance; it is the use of the content in solving the everyday problems of life. This attitude has been reflected in such studies as those by Hauenstein (19) and Scott (48) on a drawing program, by Tilley (54) on a synthesis of academic work and industrial education, by Williams (61) on housing education, by Casey (9) on design practice and application as related to industrial arts, and by the study on the teaching of consumer knowledges by Blawat (7). Studies with a similar point of view in other areas are the ones by Wells (59) on the value of industrial arts for secondary-school girls, and by Herold (21) on industrial arts in the elementary school. Herold concluded that in the elementary program the development of motor skills has a definite place, but is incidental rather than an end in itself; that industrial arts has fundamental values for all maturity levels. The value of a program of industrial arts on the elementary level was borne out in the study by Alterman (1). Cheney (11) found that summer-camp programs were providing a wholesome influence on the lives of boys in the present industrial society, but that they could achieve better results by the addition in

their industrial arts activities of more functional content under the direction of competent teachers. The effectiveness of different methods of teaching drawing was studied by Ray (43) and Stevenson (51). A functional approach by the use of applied problems was found just as efficacious and less time-consuming than abstract problems.

### **Administrative and Supervisory Improvement**

Efforts to improve administrative and supervisory procedures have been apparent during the past few years. Improved supervision has been on a statewide basis as well as from a local or institutional point of view. Industrial arts teachers in Connecticut (53) developed a state program which was published in the form of a handbook for use in the supervision of industrial arts. A study of considerable value to state directors and state supervisors of vocational education as well as other administrators was conducted by Earhart (15) on vocational-teacher training and certification in trades and industries. It was found that great variations existed among the states, both with respect to certification procedures and to trade and educational requirements. Warner (58) made a comparative study of state-certification requirements for teachers, supervisors, and directors in vocational education in the United States from 1876 to the present time. The findings may throw some light on future trends.

Buboltz (8) analyzed the duties of the supervisors of industrial arts in Michigan cities having a population of over twenty thousand from the standpoint of factors of relative importance and value. A study of Deman-gone (13) in personal management was devoted to the training within industry of foremen and supervisors under the manpower commission. A manual for use in supervision of industrial-vocational education was developed by Lester (27). He prepared a job analysis of the supervisor in charge of an area in an industrial-vocational high school. Ross (44) conducted a study on the origin, development, and administration of certain phases of rural, community-vocational schools in Pennsylvania.

The matter of shop accidents and safety programs has been given greater stress. Two studies dealing with the subject were conducted by Beguhm (6) and Martin (31). Special provisions were recommended to meet the challenges to safety found in certain danger spots such as the earlier and later months of the semester, the use of machine tools in the elementary-schools shops, and in the concentrated dangers to fingers, hands, and eyes.

The administrative value of an annual, industrial arts, shop report to the principal, according to Henke (20), is in its use as an instrument of public relations by providing information to the public. Such a report can also furnish a basis to the administrator for determining the educational value of industrial arts education and its place in general education. A score card for evaluating industrial arts library material by Rust (45) and a checklist for graphic visual arts by Baltz (4) should prove of aid to administrators and teachers.

Some of the pressing administrative problems in industrial arts and

industrial-vocational education in the present period have had to do directly with the teacher; the shortage of teachers, minimum salaries, and salary schedules in keeping with the rising cost of living; and both preservice and inservice training. Ramsey (42) analyzed some of the underlying causes for shortages and developed a program of guidance in high schools designed to secure more college students in industrial arts education.

The democratic concept of educational administration is bringing about greater participation and responsibility on the part of industrial teachers in the planning and carrying out of the school program (39). This in turn necessitates a higher standard of preparation for teachers in industrial education.

Improved methods for the preparation of teachers have been given stress. Silvius (50) conducted a study on instructional units for professional courses in undergraduate industrial arts teacher education. Olivo (40) prepared a manual for inservice teachers with special reference to machine-shop work and indicated methods of developing instructional material in this field.

Better methods of evaluation have been coming into use in recent years. The typical objective test which replaced the traditional essay examination of the past is now giving way to more comprehensive evaluation. The mere testing of facts learned is being replaced by measurement of understandings. Students will give evidence of understanding if their reactions show that they know how, why, and when to use the information and skills gained from their industrial arts courses to meet situations in life (41). A test for shop teachers to show professional growth was studied by Wilber (60). Such a test can be used not only to determine the improvement during a period of time, but also can provide opportunity for comparing the product of a given school with that of the country at large. Other studies concerned with evaluation included an aptitude test for industrial arts by Schwalm (47), an analysis of testing methods and technics for use in the licensing of drivers with orthopedic disabilities by Elkow (16), an attempt at prediction of achievement in technical-service courses at Iowa State College by Swanson (52), and the study by Schahet (46) of the values of industrial arts as a selective agency for entering vocational trades. That there is urgent need for more research in methods of testing in industrial education was pointed out by Morgan (34). Since the cost of industrial education is relatively high, there should be greater effort given to the selection, classification, and prediction of pupils' abilities.

### **Social Adjustment**

One of the recent aims of industrial education has been to aid in the educational and social adjustments necessary since the war. The industrial arts, vocational, and technical programs in upper-high-school and junior-college levels have proved of valuable assistance to persons of that age group. The jointly supported federal and state systems of vocational edu-

cation have offered educational facilities for large numbers of demilitarized men and women (35). Lester (26), in his report on providing for unemployed workers in the transition, proposed a program of education and training, both general and vocational, which would take the place of war-time programs. It would be designed chiefly for persons experiencing "re-conversion" and "frictional" unemployment. Courses would be arranged so that laid-off workers could begin course-study at once. A wide variety of general educational and basic vocational courses would be offered. Most of the vocational training should be along lines of business and in occupations that would expand after the war, but would in no way be a substitute for "on-the-job training." One study regarding physically disabled industrial workers was conducted by Wagner (56) in an effort to determine work efficiency in terms of production, attendance, accident rate, and severity of accident.

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## CHAPTER IV

### Business Education

HAMDEN L. FORKNER

**T**HERE has been a general trend thruout the country to use the term "Business Education" instead of the term "Commercial Education" when dealing with store or office occupational education or that phase of general education which deals with what everyone should know about business and its services. This marks the first time in the REVIEW that the term "Business Education" has been used.

Emphasis on research in the field of business education shifts from year to year as new developments occur. The reviews which follow are selected as being the most significant out of a large number in various fields. A section on distributive occupations has been added. An enormous amount of research in the field of distribution has been done by trade associations and by individual distributors. Some of these studies may have direct application to business education, but for the most part the data were not reported in a form to make it possible to evaluate the procedures and applications.

#### Secretarial Practices

Winter (24) made a study of the speeds of dictation in business offices for the purpose of determining what the levels of training should be for stenographic jobs. Eighty-seven different business firms cooperated in the study. The investigator observed 253 letters being dictated to the regular secretary involving a total of 498 minutes of dictation. By the use of a stop-watch she recorded the exact word that was being dictated at the end of each sixty-second period. Time out for telephone or other interruptions was not counted in the total time. Using carbon copies of the 253 letters, counts were made of words, syllables, and strokes for each one-minute interval. She found that the greater part of the dictation was given at a rate of sixty to eighty words a minute. Approximately 30 percent of the dictation was given at fifty words a minute or less.

There is a noticeable trend toward omitting the salutation and complimentary closing as superfluous in interoffice correspondence. Some firms even omit them on all correspondence.

Harms (7) made a study in cooperation with the Columbus, Ohio, chapter of the National Office Management Association to determine whether qualified office workers were superior to selected near-graduates in our schools, and, if so, how much. He set out to test the assumption that designated well-qualified office workers on the job rank higher than selected students in spelling, proofreading, and vocabulary ability, and in their speed and accuracy in typewriting. Only those students whom teachers were willing to recommend for office positions were included in the study. The

office employees were limited to those whose job titles indicated they were typists, stenographers or secretaries, and who were rated as well-qualified by their supervisors. Six hundred and two office employees from sixty-seven different firms, and 3081 students from widely selected cities participated. They were distributed as follows: 761 university students from thirty-four different institutions, 1720 high-school students from ninety-nine high schools, 508 students from parochial schools, and 92 students from six business colleges.

He found that the designated well-qualified office workers were not superior to selected near-graduates whom teachers were willing to recommend for office positions in spelling, word usage, and in accuracy of type-writing. The office group was significantly superior to the student group in typing speed. Henderson (8) made a study to find ways of improving the effectiveness of teaching Gregg shorthand by the functional method. After drawing up a checklist of problems of teaching shorthand by the functional method, she asked 150 shorthand teachers to indicate which were of major, minor, or incidental importance. An "exhaustive" list of techniques or activities which might be utilized in alleviating the thirty-four problems were proposed and sent to a selected group of "highly successful" functional shorthand teachers for evaluation. The list was composed of five to fifteen devices or techniques to be used in meeting each of these problems. She stated that only about 20 percent of the teachers reported that they followed the method completely and yet she apparently used them to determine what the problems of teaching by this method were.

Hylton (9) made an analysis of the results of the 1946 federal civil service stenographer and typist examinations. She reported that 225,000 persons took the tests and that between 40 and 50 percent passed. In some civil service regions as high as 60 percent failed. The conclusion was reached that the results are a serious indictment of the teaching of stenographic and typing skills in the high schools and in the private business schools, since the civil service tests measured those phases of skill-learning which are concentrated upon in most school programs, namely, business English, ability to type from straight copy, and the ability to take dictation and transcribe.

### Shorthand

One of the common problems facing administrators and teachers is that of having some basis for knowing which of the many shorthand systems now on the market and being invented almost daily is the most satisfactory to use. Sherman (20) set about to isolate some of the factors which enter into the reading and writing of manually written shorthand systems and to establish criteria for the objective evaluation of shorthand systems with respect to their facility of reading and writing. His study was limited to structural characteristics and the judgment factors which enter into the reading of the system. He used a random sample of 614 words selected

from the 3000 words of highest frequency as listed in Horn's *The Basic Writing Vocabulary of 10,000 Words Most Commonly Used in Writing*. He felt that the 3000 words of highest frequency represented average dictation material.

Three formulas were developed for testing his assumptions. One of the formulas related to the *frequency of outlines* in any one system standing for more than one word or phrase. His *writing-efficiency* formula related to the number of strokes each system used to write a word and his *word-completeness* formula related to whether or not the reader had to supply from memory the parts of the word which the outline did not supply. He then applied these formulas to eight different shorthand systems. He found that shorthand systems can be differentiated with respect to these three factors.

Markwick (13) conducted a study to determine the relationships between medical-secretarial-training programs offered by junior colleges and the requirements of physicians; what the duties of a medical secretary included; and whether medical secretaries can be successfully trained in the junior college, and, if so, what the curriculum should be. The study covered a span of nine years and involved eleven junior colleges which offered medical-secretarial-training programs, 539 physicians from forty-five states, and 124 medical secretaries who were graduates of junior colleges. Her sampling of physicians and secretaries included all the essential elements of validity. The analysis of data collected was extensive and related to duties, technical activities, personal characteristics, and knowledges and skills needed to perform satisfactorily.

She found that a significant proportion of physicians cooperating in the study needed medical secretaries and believed that colleges with well-equipped and properly staffed laboratories could prepare them adequately. A large proportion of physicians reporting expressed their opinion that the teaching of laboratory technics in college laboratories is desirable and practicable; that the junior-college program should be developed in cooperation with medical associations; and that each student should have a three months' internship in a hospital approved by the medical association.

### Typewriting

Du Frain (3) made a study of the practicability of emphasizing speed before accuracy in elementary typewriting to test the hypothesis that in learning motor skills the beginner should be taught speed first regardless of quality of output. She used a pair of experimental and control classes in each of four high schools. In each high school the classes were taught by the same teacher. The same materials, lesson plans, and testing programs were used in each class. The experimental and control groups each contained ninety-three students. The traditional view that in order to lower error rates, speed must be reduced, was not borne out in her study. Emphasizing speed before accuracy in elementary typewriting is practicable.

### **Bookkeeping and Accounting**

A comparative study of college accounting students who have studied high-school bookkeeping with students who have not studied high-school bookkeeping was made by Sipe (21). There were twenty-eight students who had had bookkeeping in high school and fifty who had not. The two groups were placed in different sections and given the same instruction and the same examinations. The two sections were, however, taught by different teachers. The examinations were comprehensive and sufficiently objective to permit satisfactory comparisons. The study showed that in practically every phase of the mid-semester and final examinations, those who had studied bookkeeping in high school did better than those who had not. Twenty-one percent of those who had studied bookkeeping in high school made failing marks as compared with 38 percent of those who had not. Twenty-nine percent of those who had studied bookkeeping in high school made marks of "A", whereas, only 6 percent of those who had not, made "A" marks.

Ervin (5) made a questionnaire study of eighteen certified public accountants in Newark, New Jersey, to find out what they believe the businessman has a right to expect from the high-school graduate who has studied bookkeeping. The results were tabulated in terms of frequencies, showing what phases should be stressed in bookkeeping, what the student should be merely acquainted with, and what should be discontinued.

### **Distributive Occupations**

Job analysis has long been considered essential to the solution of problems relating to efficient selection, training, wage scales, and promotional policies of business and industry. The analysis of the work of the retail salesperson and the clerical and nonselling jobs in retail stores has been neglected. Plant and Pope (17) conducted a study of the jobs in retail stores and compiled a list of requirements including primary characteristics, skill requirements, responsibilities, and job conditions as a basis for assigning weights to the various factors. They then formulated a job-measurement guide which gives the "point score" for each degree of each factor. The application of this guide makes it possible to arrive at a total-point score for each job. The field research was carried on in large department stores in six different large cities with the assistance and guidance of a large number of experts in personnel and management research.

The investigators indicate that "Job analysis is not a cure-all, nor is it infallible. It's a guide and not a 'god'." The report contains a brief checklist of the steps involved in organizing and undertaking a job-evaluation program.

Zubin and Peatman (25) made an analysis of claims of advertising research workers on testing the pulling power of advertising copy by using the split-copy technic. They developed a formula and presented three nomographs which the research worker can use to eliminate the necessity

of statistical computations in determining the reliability of results of split-copy advertising.

Eberhart (4) surveyed the demand in Indiana for teachers trained in retailing and selling occupations. He received replies from 151 high schools, 42 of which were not interested in offering such training, 62 which indicated they would offer training if the school had a teacher trained in the field, and 47 which were offering one or more courses.

The problem of educating persons who wish to establish small businesses has been attracting more attention because of the high incidence of failures among small businesses. The New York State Department of Commerce (15) has completed an analysis of publications that would be of value to persons concerned with this problem. The publications include trade magazines, books, and pamphlets. Many of the items are annotated. Over seventy-five different fields of small business are covered.

### General Clerical Training

Business education has long been concerned with research in the fields of shorthand, typewriting, and bookkeeping. However, little research has been done in the field in which large numbers of young graduates of business departments actually work, namely, the general clerical field. Potter (18) made one of the original studies in this field. Her analysis of the work of general clerical employees was designed to determine the characteristics of the work of the typical employee and the characteristics of typical business inservice training programs so as to have bases for school programs preparing general clerical workers. Her study resulted in twenty significant findings, together with recommendations. The time-analysis charts, interview forms, and directions for filling in the time-analysis charts were included in the report. These should prove of value to others who wish to analyze the work of recent graduates.

Lennon and Baxter (12) investigated what specific aspects of clerical work are related to scores on the types of tests most commonly used in selecting clerical workers. A learning-ability test and a clerical-aptitude test were administered to two hundred and fifty employed persons including clerks, stenographers, and typists. The employees were then rated by their supervisor on a checklist which was considered an accurate measure of clerical success. The findings indicated that so far as the tests were concerned, there was some slight relationship between certain items on the checklist that could be predicted by test scores. For the most part, it was concluded that there should be separate tests for typewriting, shorthand, statistics, grammar, and spelling.

Textbook authors, teachers, test constructors, and others have long felt the need for some valid basis for the inclusion of economic and business terms in their materials. Lawrence's (11) study is a significant contribution to this problem. He made an analysis of the frequency of use of words and collocations of business and economic connotations in current, nontechnical



literature of high circulation. He analyzed the terms from approximately five hundred and fifty thousand running words in such sources as *Time* magazine, *The Saturday Evening Post*, and compared his derived list with the Lorge and Thorndike Magazine Count of five million words, indicating the frequencies which would occur if a larger sample had been used. Lists were derived containing 1483 words and 3150 collocations of business and economic use that should be known by readers who wish to read current popular materials dealing with business and economic life.

Tobin (23) made a survey of sixty business firms in Kingston, New York, to learn whether business students were receiving adequate instruction to fit them for initial jobs. Employers reported on the types of machines used for which they believed the school should give instruction, and on the various clerical duties performed by office workers for which the schools should train. He found the usual criticisms of employers with regard to fundamentals—lack of willingness to assume responsibilities, and general personal defects about which the schools should be concerned.

Epsilon Chapter of Delta Pi Epsilon (2) made a study of the pupils enrolled in commercial subjects in ninety-five public high schools of Massachusetts. Nineteen percent of the schools reported a trend toward requiring all pupils to take one or more business subjects. Approximately 45 percent of the school enrolment was in the commercial department and 9 percent of noncommercial pupils were taking one or more commercial subjects. The study also surveyed the guidance, placement, and follow-up programs of the school, and drew ten basic conclusions regarding commercial education in Massachusetts.

The office activities which commercial students are most likely to undertake on their jobs were investigated by Stockman (22). An extensive list of duties was drawn up. Replies were received from 427 graduates over a period of six years. The report includes tables showing the sixty-six most frequently performed activities grouped into eleven categories.

Pierce and Nichols (16) studied 3866 business firms owned and operated by Negroes in nine different cities as a basis for estimating the needs of business education in Negro colleges. They analyzed the volume of business done in these firms as it related to the business training of the owner. They also interviewed Negro consumers to determine their preferences as to patronizing establishments operated by Negroes as compared with those operated by whites. Almost 99 percent of the consumers stated they would prefer Negro to white if the prices, quality, service, and store appearance were equal.

A joint committee of the Seattle Chapter of the National Office Management Association, the Seattle public schools, and the University of Washington (14) conducted a study of business education in Seattle, Washington, for the purpose of bringing the schools and business closer together and to assist in planning for better training and placement of the graduates of the business departments of the high schools. They studied the problems



of beginners in office work and the mechanical equipment the beginners should be acquainted with, and be skilful in operating. The survey included vocational opportunities, needed curriculum changes, and equipment needs for high-school business education.

### Teacher Education

Rowe (19) made a study of the comparative offerings in business-teacher education in liberal arts colleges with those of the four-year, state-supported, teachers colleges to see what types of course sequence and patterns were found in the two types of institutions, the grade placement of subjectmatter, and the amount of credit given. He limited his study to a sample of twenty-six liberal arts colleges and twenty-eight state teachers colleges. He found that liberal arts colleges were devoting considerably more time to general education than state teachers colleges, that little uniformity existed as to the amount of credit allocated to the various subjectmatter divisions, and that state teachers colleges required considerably more general professional education in the business-teacher education curriculum than did the liberal arts colleges.

The Bureau of Business Education, California State Department of Education (1) studied business education in California as of March 1945 to aid in determining the type of teacher education needed and to ascertain the status of business education in the state. Data from 116 junior high schools, 338 high schools, and 39 junior colleges were secured and compiled. The top three subjects in student enrolment were typewriting, book-keeping, and shorthand, in that order. A total of 1844 teachers in business subjects were employed in the junior colleges, high schools, and junior high schools, of which over 1400 taught one or more business subjects. Four state colleges and two of the major universities offered comprehensive programs for the training of business teachers. Thirty-six communities were served by the federally aided distributive occupations program during the year 1944-45. Only 124 students were enrolled in the cooperative part-time program.

To determine to what extent the interests of women teachers of business subjects in public-secondary schools differ from those of women in other occupations, and whether the interests of women teachers of specific business subjects vary from those of other business subjects, was the purpose of Koepke (10). He contended that if the interests were significantly different, the scales could be used in counseling prospective teachers. He used the Strong Vocational Interest Blank for Women as his measuring scale and drew eleven conclusions from the data collected. The major conclusion was that the common interests of business teachers and office workers suggest that women scoring high on the scale for office workers would make a satisfactory adjustment in the teaching of business subjects so far as interests are concerned.

Graduate work in the thirty-eight institutions of higher education in the

United States that offer programs in business education was surveyed by Garrett (6) to ascertain what particular courses are considered most desirable for a master's degree program for the secondary business-education teacher. He studied the following requirements: admission, subject-matter, professional education, and minimum standards of accomplishments in the skill subjects. He used a questionnaire and college catalogs as the sources of his data. Most of the graduate courses offered in business education were found in the fields of administration and supervision, curriculum, principles and organization, methods of teaching, and research. Ninety percent of the institutions admitted graduates and undergraduates to the same courses; only 50 percent of the institutions required a different quality or amount of work from the two groups. For the master's degree 70 percent of the institutions required students to carry on a research project and write a thesis. Twenty percent made a thesis optional. Seventy percent reported that a final comprehensive examination was given master's degree students, but none required an examination in skill subjects to qualify for the degree. Only 7 percent reported that they required actual business experience of graduate students.

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## CHAPTER V

### Agricultural Education

W. HOWARD MARTIN

**M**OST, if not all, education in agriculture contributes directly to vocational proficiency. Farming, as the pivotal occupation in agriculture, is outstanding among all occupations to the extent to which it influences the character and values of the family life of those engaged in the occupation. Hence, in large measure, education in agriculture is significant both for work and for family life.

Education in agriculture is available not only to persons regularly enrolled in educational institutions, from the upper elementary grades to graduate schools, but also to youth and adults not enrolled for full-time school attendance. Programs of education in agriculture are conducted thru public schools and other agencies. All too often the scope of problems investigated has been limited to one level or to the program of one agency. Problems are not limited to single programs. The research in one area often may have value in several programs. Hence, it is encouraging to find several studies (53, 62) in which problems cut across the usual arbitrary dividing lines of responsibilities between agencies. In view of the interrelationships and opportunities for constructive cooperation that were illustrated in three investigations (20, 39, 63), it was thought to be appropriate to consider research in agricultural education *in toto*. Smith (50) in the previous issue of the REVIEW included only studies in vocational education in agriculture carried on by the public schools.

Previous reviews and summaries in agricultural education have included a total of 837 studies. In two publications (44, 45) the studies completed between 1917 and 1940 were summarized. A majority of the studies were in the specific area of education in vocational agriculture.

More than one hundred and twenty studies were considered in preparing material for this chapter. A continued high regard for research was revealed in these studies in spite of the wartime pressure for more direct accomplishments. The studies included in this chapter were selected for their relationship to the theme of the issue, and for their quality, representation of different areas, accessibility, and illustration of new approaches and technics. Counsel was sought in appraising the studies and in locating studies of merit to insure quality and scope of treatment.

#### Trends in Character and Scope

Smith (50) pointed to such needed developments in research in agricultural education as a more thoro evaluation of current experience, the initiation of cooperative research, an increased effort to organize studies to extend over longer periods of time, and the development of ways and

means to insure wider dissemination of research. Progress in these directions was evident.

The recognition of interrelationships and the extent of the investigations of broad problems were appreciably increased over the situation existing in earlier research. The American Vocational Association (3) suggested research problems which involved not only the program of education in agriculture, but other programs of education in vocations. The importance of articulating education in agriculture at all levels was emphasized by Stewart (55). Bradford (9) concluded that the provision of adequate programs of education in agriculture thru public secondary schools was closely associated with the organization of the school. Ekstrom (15) studied the problem of education of farm boys and girls not only as it related to agriculture, but in other allied respects. The investigation of the broader, and often common, problems in agricultural education and associated areas is desirable. In particular, the problem of educating for farm-family living requires a breadth of attack not usually characteristic of courses called agricultural education. Active cooperation on the part of individuals from several agencies was secured in a study by Frutchey and Lathrop (20) of the employment of nonfarm youth for work on farms.

If research is to gain in functional value, a coordination of efforts or active cooperation from initial planning to ultimate application and validation would appear to be vital. The participation of research representatives from several states in cooperative studies (11, 12) in vocational agricultural education were noteworthy. Twenty-three states cooperated in a study by Lathrop and Clough (34). Youth having experience in 4-H clubs, and those having experience in vocational-agriculture classes were reported as equally favorable toward farming (64). Future Farmer chapters and 4-H clubs cooperated in a survey (23) of farm and home accidents, revealing the seriousness of a problem common to all types of agricultural education.

To study current practices requires that education in agriculture make practical commitments to research. Centers must be established in which stated goals are to be sought, the factors judged significant investigated, a record made of procedures followed, and the outcomes measured. Other research most assuredly precedes the practical commitment, but thru the latter type of investigation, much can be done to make research more functional. The difficulty in determining or controlling the factors in situations involving human beings is extreme; but nevertheless, such factors characterize the situations in which teachers are expected to effect improvement.

A procedure illustrated in a study by Hamlin (24) of the functioning of local advisory committees in program planning and evaluation is worthy of consideration and further testing. Four states have established pilot or developmental centers for the purpose of testing thru practical commitments, the principles and procedures essential to the development of successful joint programs of education in farm-family living for young men



and women. LeBaron and Martin (35) report progress in one state which is indicative of accomplishments.

### **Program Planning in Agricultural Education**

The special demands made on programs of education in agriculture (63) during the war period intensified research efforts in all phases of program planning. Programs born in the war emergency, and the forced adaptations of existing programs, opened new horizons and stimulated investigation of the problems involved in providing expanded or extended programs of education in agriculture. The trial-and-error method of establishing programs seems to be giving way to more intelligent planning based on research. It appears that a general agreement concerning purposes has been reached since major efforts were directed to a study of needs and methods by expanding or extending education of proven merit. Efforts of this character are worthwhile but at the same time a continual reexamination of purposes is essential (53, 63). The technology of agriculture and the pattern of farm life are dynamic factors to be considered in this connection, according to McKim (37).

Programs of agricultural education cannot be planned without regard for other educational needs or without consideration of other educational programs (33, 38, 40). A report of the Association of Land-Grant Colleges and Universities (8) emphasized the indivisibility of the problem of meeting the educational needs of rural people even tho specific education in agriculture and the work of the farm is needed. Postwar readjustments in agriculture (21, 52, 63) have a direct bearing on the program of vocational agriculture.

Planning programs of agricultural education on a statewide basis has the advantage of perspective which is of value in interpreting detail secured in planning for a smaller unit. Organization of secondary education in relation to education in vocational agriculture received wide recognition. In general, the conclusions reached by Lancelot and Morgan (33) and Martin (38) indicated that education in agriculture could be made available to many persons in rural areas not yet served only as a reorganization of general education occurred. Bradford (9) secured data from forty-three states and seventy-two departments of vocational agriculture located in small high schools in twenty-four states for comparison with similar data for Nebraska. He found that many states attempted to extend the teaching of vocational agriculture into the smaller rural high schools (enrolments under 100), in which approximately 22 percent of all departments of vocational agriculture were located. In the case of departments located in small schools in which the teacher gave his full services to the teaching of vocational agriculture, the annual per pupil cost of those services based on a \$2000 teacher salary was reported to exceed \$70. He concluded that with additional financial assistance from federal or state government, a 100 percent expansion in number of departments was possible in Nebraska.



However, the study presented limited data on the financing of education in agriculture, or education in general, as a basis for the conclusion reached.

The problem of providing agricultural education for high-school groups received major emphasis. An investigation of the program in New York (63) indicated that an opportunity existed for expansion and improvement of agricultural education at all levels, emphasized the need to develop a unified education at all levels, emphasized the need to develop a unified program of agricultural education in the state, and recommended the further development of the post-high-school agricultural and technical institutes as centers for the improvement of rural living.

Sound programs of education in agriculture, it is generally recognized, are developed on the basis of a knowledge of the resources and needs of the area to be served (18, 29, 46). The methods utilized, and the findings of such studies, often have general significance even tho the greater returns usually accrue to the improvement of the specific community or area program. Anderson (7) studied the vocational interests and occupational careers of 683 high-school students over a period of fourteen years as a guide in planning programs. Vocational interests were rechecked twice yearly over a four-year period, as well as at the time of entering high school in 1929. In 1943, he secured data on the occupational pursuits of 586 members of the group. At that time, less than 20 percent were in occupations indicated by their vocational interests when they were seniors. Conditions due to the war probably affected the careers of many in the group studied. A course of study in consumer agriculture (22) was developed for a specific community in which a majority of the families secured a portion of their livelihood from the land. There was other evidence (16, 17, 26) indicating the need for programs in agricultural education, adapted to the part-time farming group.

The importance of education in agriculture for nonschool groups has received recognition (5, 52). Furthermore, there is an increasing awareness of the timely and functional values of instruction in family-life problems for the group (13, 35). Fife (17) thru personal interviews, questionnaires, and historical research in the problem of planning programs for young farmers, concluded that the emphasis of such programs in Ohio should be on earning a comfortable living. He also concluded that programs for young farmers should be planned on a community basis and include both veterans and nonveterans. Problems of guidance and placement, as well as problems of a national or international character, were reported as of concern to veterans. Altho the sampling of veterans was carefully planned, it included only 130 cases, all high-school graduates. Hence, as indicated in the report, there was a need for additional studies of veterans who were nonhigh-school graduates.

A study limited to veterans from a rural area by Hoskins (26) presented data basic to the organization of educational programs in agriculture or other subject fields. He studied the educational records and work experience

of eight hundred young men from three rural areas in New York who entered military service prior to January 1944. Certain sections in the schedule were adapted from the U. S. Census, facilitating direct comparisons with census data. Resources of the areas and employment opportunities were enumerated. The study was designed to stimulate interest in, and establish patterns for, the development of programs for veterans. Its usefulness as a pattern would have been greater for teachers, extension agents, or other local leaders in agricultural education with limited time and resources if data to be collected had been more carefully chosen, and if simplified schedules had been developed. The need for developing simplified patterns for studying problems of education in agriculture must be recognized if research is to become a functional tool of those who deal most directly and realistically with the formulation of programs of education in agriculture. The procedure used by Hamlin (24) provided for participation of teachers of agriculture and other leaders who constituted an advisory council. As a coordinator, he worked with the council to establish objectives and evaluate criteria for a program of agricultural education. The project, planned to extend over a period of five years, has as its purpose the investigation of the functioning of an advisory committee. The method followed brings research in program planning to what might be termed the critical level.

Programs of agricultural education become effective thru individual teachers. Anderson (6) studied the educational and experiential backgrounds of 175 graduates in agricultural education. The findings of his study have considerable value in developing preservice programs of education for teachers of agriculture. Hayden (25) analyzed transcripts of credits of graduates (1941) in agricultural education. He reported little significant change in course titles or credit hours over those reported in an earlier study. The proficiency in technical agriculture of beginning teachers was studied by Rhoad (48). Many deficiencies were noted and his recommendations for adjusting programs of teacher education constitute a worthwhile contribution. Other investigations (2, 45, 58) also relate to the collegiate programs of preparation for professional positions in agriculture. Hoskins (27) discovered a limited relation between salaries and teaching situations. Sanders and Richards (49) found low salary to be one of the reasons for teachers of agriculture leaving the profession.

### **Evaluation and Appraisal**

An analysis of past functioning of the same or similar programs can contribute much to the planning of programs or improving programs of instruction in agricultural education. Because of the interaction between evaluation and planning, it is impossible to make absolute distinctions in a classification of studies. The studies so classified, in general, had evaluation as a primary purpose and appeared to give evidence that the

author recognized the importance of a continuous effort to evaluate and appraise.

Twenty-three states participated in a national appraisal. Each of the states cooperated in an appraisal at the state level by Lathrop and Clough (34), of the Food Production War Training Program. Participation of specific states to insure geographic distribution, and the inclusion of equal numbers of strong and weak local programs, were significant features in the sampling technic. The study included 359 local programs. Interviews were had with 4568 enrollees. Of the several courses offered in the program, that of producing, conserving, and processing the family's food supply probably made the greatest direct contribution to family living. The average number of new or changed practices adopted by persons enrolled in this course was 5.6 and attendance averaged 23.5 hours per enrollee. Eighty percent of enrollees planned to continue to use the school community canning centers. The three major advantages of the course as reported by enrollees centered around time and labor-economy training, and superior equipment. Raper and Summers (47) found that the rural people believed that community canning centers and farm machinery repair centers should be continued as a part of the program in public schools. Personal interviews were made with 613 farmers in thirty-two widely scattered counties; two-thirds of those interviewed were owners, and the others, tenants and sharecroppers.

During the triennium, many nonfarm youth worked on farms in the summer months as Victory Farm Volunteers. Evaluation studies of this program were made cooperatively by workers in eight states. While primarily concerned with developing key points of a successful program for the war emergency, the evaluations reported by Frutchev and Lathrop (20) may well serve as a basis for planning future farm-work experience for urban youth. Numerous local committees participated in a national evaluation study (60) of programs in vocational agriculture. Strong and weak programs were contrasted in a manner to assist an individual teacher in evaluating his work.

The judgments of farmers were used by Starrak (54) to secure an evaluation of programs of agricultural instruction in school and college. Two hundred and forty-three respondents of a carefully selected group of successful farmers gave judgments used in obtaining the evaluation. In education, farm tenure, status, and size of farms, they were above the average of all farmers in the state. Their ideals and goals would be expected to exceed those generally sought. Over 50 percent included among their criticisms of public-school education that "pupils do not learn to work." Farmers were less critical of the program of vocational agriculture in the secondary school than of any other program of agricultural instruction, and most critical of general agriculture. In judgments given on specific objectives, over 75 percent of the respondents would give considerable

emphasis to the development of interest and appreciation for the importance of farm, home, and family life.

Criteria for the evaluation of programs of teacher education (28) and for the establishment of departments of vocational agriculture (57) merit consideration as aids to evaluating specific situations and to possibilities in method.

Deyoe (14), using two equivalent forms of a test of understanding and problem-solving ability, studied individual differences and growth of sixty-seven students of vocational agriculture. By including students from each of the several years in which agriculture was offered and extending the study over a school year, he was able to evaluate, to some extent, a growth pattern for a period of years. His findings indicated that both percent and numerical gains decreased with each succeeding year of instruction in vocational agriculture. Inasmuch as this is one of the first studies of its kind in the field, there would appear to be a need for repeating it with larger numbers of students. Attention might also be given to the development of other tests which would be appropriate for the measurement of growth in the field of agriculture. However, as a pioneer study, it has considerable significance as an evaluative technic and as a means of effecting improved instruction in agriculture. The need was pointed out (19) for tests measuring understanding of social and economic problems for use in evaluating vocational-agriculture programs.

### Improvement of Instruction

The effective guidance of persons toward or away from the study of agriculture becomes increasingly significant as the proportion of the population needed in agriculture declines. Rural areas have a relatively high birth-rate, so many youth must leave the farm. Clough (13) concluded that parents, schools, and other agencies should give more attention to the problem of preparing sons for separation from parental homes. A comprehensive analysis of the problem of assisting boys and young men to become established in farming was presented by Zeran (66). There remains, however, a need for parallel material to serve as a basis for assisting women to evaluate the potentialities and limitations of farm-family living and farming as a career in partnership.

Guidance and placement represent only a part of the total responsibilities of teachers of vocational agriculture. In a study of use of time by teachers of vocational agriculture, Sweany (59) found 58.5 hours to be an average workweek. He reported that teachers needed additional time for home visits, and that adult classes constituted overtime work. Statistically significant differences were found in both the total hours worked and the hours devoted to agricultural work between teachers who conducted adult classes and those who did not. He drew from the findings many suggestions for teachers and administrators with respect to making more efficient use of the teacher's time. The element of time was also investigated in twenty-

four states (42) as it related to the scheduling and teaching of vocational-agriculture classes. Effective solutions to the problem, it was concluded, would be possible only with more flexible time schedules and requirements. Basic studies are needed to establish time requirements for specific learning activities.

Progressive establishment in farming is a central purpose of education in vocational agriculture (52) and, to some extent, it influences other specific types of agricultural education (10, 53). Establishment in farming includes establishment of the farm-family home and life pattern. Farming programs of the learners and on-the-farm instruction for youth and adults have contributed to establishment (15, 44, 54). Improvement of instruction in agriculture to some extent, therefore, is dependent upon the development of superior technics in initiating and supervising farming programs (32, 51, 61). The follow-up of former students (7, 15, 37), the studies of environmental and experimental backgrounds (13, 17), and the analysis of opportunities (30, 46, 65) are essential to many phases of the program, but are particularly significant in the development of student-farming activities leading to establishment in farming.

Instruction evaluated in terms of significant improvements made by the learner in his farming operations must be constantly readjusted in the light of occupational changes. The development of cooperatives as reported by Cline (11) and MacDonald (36) illustrates a practical approach to the teaching of improved practices, as well as a method of developing an understanding of the vital principles of cooperation. A more effective use of current periodicals is advocated by Knight (31) as a source of current scientific and technical advances in agriculture, and as an aid to keeping content in agriculture up to date.

A specific teacher guide to materials of instruction (44) represents a valuable means of aiding teachers to keep content abreast of occupational change. Strong (56) found that courses for adult farmers in Iowa which were based on current farm problems had larger enrolments and better attendance than did those courses which included only specific units. The number of improved practices followed per member varied somewhat with the type of course; the differences favored the two-unit course over the one-unit and the current farm-problem courses.

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